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(19)



JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: 03176053 A

(43) Date of publication of application: 31 . 07 . 81

(51) Int. Cl.

A61F 13/15

A61F 5/44

(21) Application number: 01315742

(71) Applicant: ZUIKOU:KK

(22) Date of filing: 04 . 12 . 89

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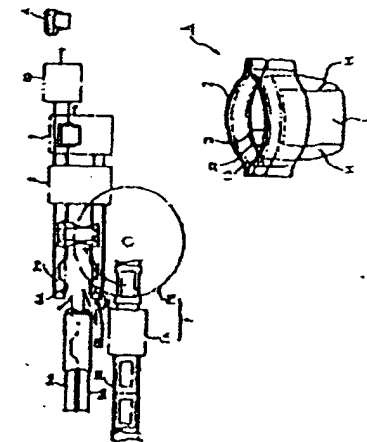
(54) MANUFACTURE OF BRIEFS TYPE DISPOSABLE
DIAPER

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(57) Abstract:

PURPOSE: To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

CONSTITUTION: Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7B behind a suction conveying device 7A and the diaper body 1 is turned by 90° to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/cutting means 10.



*full translation attached
No equivs. outside Jp*

Translation of
Japanese laid open patent application number H3-176053

Japanese Patent Office (J P)

LAID OPEN PATENTS GAZETTE (A)

Laid open patent application number H3-176053

Laid open July 31, 1991

INT. CL^s A 61 F 13/15

5/44

Identification code H

Internal office filing numbers 7603-4 C

6606-3B A 41 B 13/02 S

Examination request not requested

Number of claims 1

(total of 6 pages [in the Japanese])

Title of the invention Brief-type disposable diaper production
method

Patent application number H1-315742

Application date December 4, 1989

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- 2 -

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Specification

1. Title of the invention

Brief-type disposable diaper production method

2. Scope of the patent claim

A brief-type disposable diaper production method involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body;
a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

3. Detailed description of the invention

- 3 -

Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number S57-77304: "Diaper-brief and Production Method Therefor".

Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

- 4 -

represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

- 5 -

present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts P, and the shape can be selected according to the shape of the

- 6 -

waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

- 7 -

transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating 1/4 of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90°, and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

- 8 -

diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- | | |
|----|--------------------------|
| 1 | Diaper body |
| 2 | Back waist part |
| 3 | Front waist part |
| 7 | Diaper body supply means |
| 8 | Adhesion means |
| 9 | Folding means |
| 10 | Cutting means |

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④日本国特許庁(JP)

④特許出願公開

④公開特許公報(A) 平3-176053

④Int.Cl.⁹

発明の名称

特許庁登録番号

④公開 平成3年(1991)7月31日

A 61 F 13/15
5/44

H

7603-4C
6606-38

A 41 B 13/02

S

否 否 請求 未請求 請求項の改 1 (全6頁)

④発明の名称 プリーフ形使い捨ておむつの製造方法

④特 願 平1-315742

④出 願 平1(1989)12月4日

④発 明 者 和 田 隆 男 大阪府摂津市南別府町15番21号 株式会社瑞光内

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④代 理 人 弁 理 士 奥 村 文 造

特 許 公 報

1. 発明の名称

プリーフ形使い捨ておむつの製造方法

2. 特許請求の範囲

外装シートと内装シートとの間に吸水体を組み込んでおむつ本体を形成する工程と、

少なくとも前記吸水体に吸水能力を有する透液性の可透膜層を形成し、前記可透膜層が吸水体を形成する工程と、

前記可透膜層を吸水体とは反対側に配置する工程と、

前記おむつ本体を二重に折り畳むとともに前記可透膜層を折り畳む工程と、

折り畳んだ前記可透膜層を前記吸水体とは反対側に配置し、おむつ本体の両端を縫合して前記可透膜層を前記吸水体と一体化する工程と、

を包含し、おむつ本体と、一体の前記可透膜層とを有する、プリーフ形使い捨ておむつを製造することを特徴とする、プリーフ形使い捨ておむつの製造方法。

3. 発明の詳細な説明

④発明の技術分野

本発明は、プリーフ形使い捨ておむつの製造方法に関するものである。

④発明の目的

この発明のプリーフ形使い捨ておむつの製造方法に際し、特許第37-17304号「おむつのプリーフおよびその製造方法」の公知技術が利用できる。

④発明が解決すべき課題

上記の従来の技術においては、前記おむつ本体の両端を縫合するための可透膜層を形成するための可透膜層が存在するので、可透膜層を形成するための工程を省略する必要がある、製造コストが高くなる問題がある。

④上記課題を解決するための手段

本発明は、おむつ本体を形成する工程と、前記可透膜層および前記可透膜層を形成する工程と、前記可透膜層に前記吸水体と前記おむつ本体を縫合する工程と、おむつ本体と前記可透膜層とを一体化する工程とを有する、プリーフ形使い捨ておむつの製造方法による。

図面J-17C053 (2)

用紙を用いておむつを製作し、又は既成の上記図面
図を模倣するものである。

○要約

以下図面に示す要約図にもとづいて、本発明を
説明する。

第1図乃至第4図は本発明により製造されたア
リーフ状の用紙おむつの一例を示し、1は前
つまみで、外装シート（例えば、不透水シート
であるP、E、シート）11と内装シート12
（例えば、透水性シートである不織布）とで、縫
合部13を形成して形成されている。

2は側面図であり、3は側面図であり、
図面図2・3は、おむつ本体1とは縫合して
後部の片側を形成するが、前部側ではおむつ本
体1と別個の部材を縫合し、片側をP、E、シ
ート21・31、内装を不織布22・32とする二
層構造とし、その一部に別個部材シート（例えば、
ポリウレタンシート）23・33を組み込み、少
なくとも上面において透水性のある構造とし
た。なお、別個部材シートの形状構造とし全面の

シート12との間に組み込んだ後、前部側面図
図15に示すように縫合部4により形成し、前部
側面図16により両面を形成する。または前部
側で縫合して前部片側に形成する。なお、公知の
おむつの製造工程と同様であり、従来の用紙お
むつの製造ラインを適用することが出来る。

なお、前部側面図15を、第1ユニット15
と第2ユニット15'との2層構造とし、第1
ユニット15'では両面ともに透水性部分の切
断のみを縫合して、透水性におむつ本体1を形成
して、おむつ本体部15'を縫合工程に送り込み、
側面図図2・3との縫合工程の途中におい
て、第2ユニット15'により前部片側に形成す
るに形成してもよい。

また、おむつ本体1の形成を片側片とする場
合は、前部側面図16が示している。第1ユニ
ット15'では両面のみを縫合し、第2ユニット1
5'で形成することにより前部を形成することが
出来る。

また、前部側面図16の形成は、前部側面図

に示す図のある構造としてもよいことは明かである。
なお、図面図2・3は、透水性のある部
材が縫合している。P、E、シートを縫合して不
透性と透水性シートとするか、P、E、シートを
縫合する場合には多数の小孔を形成させることが可
能しい。また、透水性シートに、ゴム、ゴムテープ、
透水性の部材15'に縫合する透水性シート15'（15'）
縫合したおむつ本体1の形成を形成するたのの図
面図は、おむつ本体1の両側および片側の透水性、
図面図2・3の両側および片側の透水性により形
成され、一時的に前部片側に縫合部13を形成する
。

次に、第1図乃至第3図を参照して、本発明に
よるアリーフ状の用紙おむつの製造方法を説明
する。

4図は、おむつ本体1の製造工程を示し、外
装シートロール11より供給される外装シート
（バックシート）11上に、吸水性13を形成し、
その上に、内装シートロール12より供給され
る内装シート（トップシート）12を供給して、
アンダーラップに吸水性13を外装シート11と内

2・3の形成および縫合する図面図16の形成に
より縫合のものが形成されるものである。

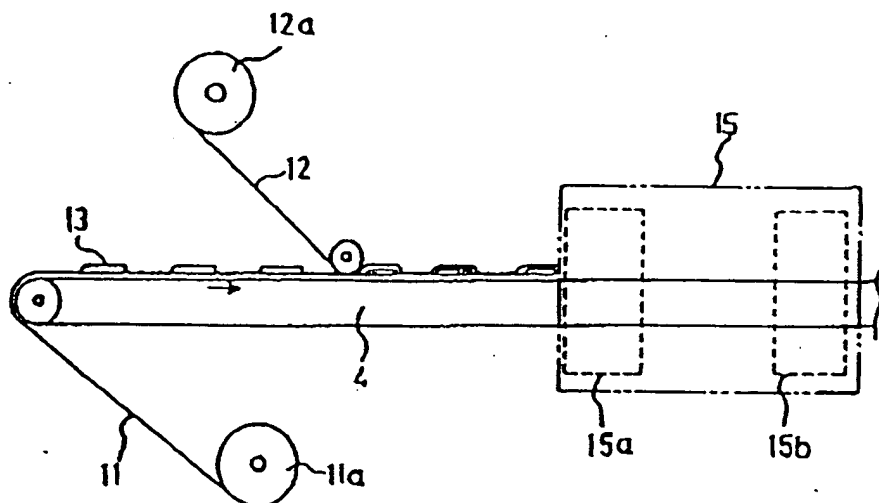
第1図の形成は、前部側面図図2・3の2
ラインを形成し、前部側面図シートロール14より
供給された前部側面シート23を前部側面図24
により前部側面部分の縫合3を形成して縫合して一
片の形成部を形成し、一方を前部側面図図25
とし他方を前部側面図図26とする。

なお、第3図に示すごとく、外装シート（P、
E、シート）と別個部材シート、内装シート（不
織布）と別個部材シート、または外装シートと別
個部材シート内装シートとの多層構造とする場合
には、別個部材シート23を前部側面図図25の形成部
ととしシート21・22の一部にのみ形成
すると、別個部材シートを前部側面に形成部を
形成することなく）形成ができ、且つ図面図2・
3の形成を形成に形成し、前部側面図の縫合部を
形成することが出来る形成である。

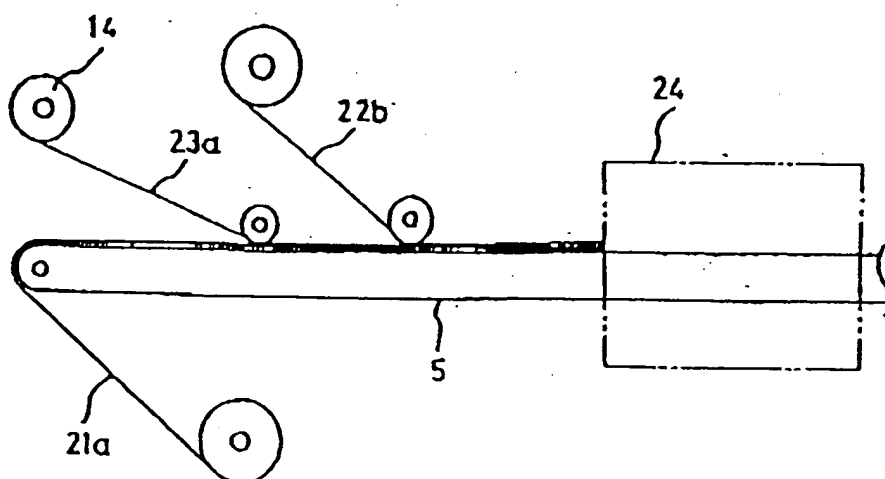
第1図の形成は、4図のおむつ本体1と、6図
の形成部図2・3とを、一併して、

特開平3-176053(4)

第1図(a)

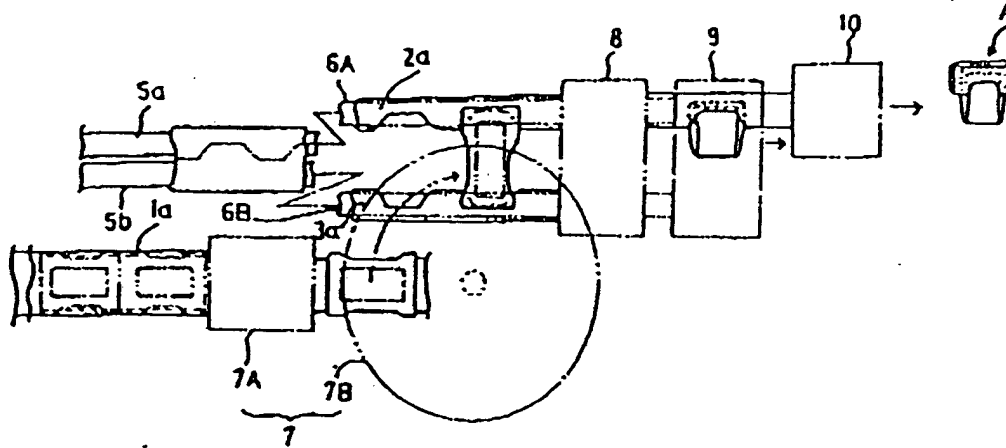


第1図(b)

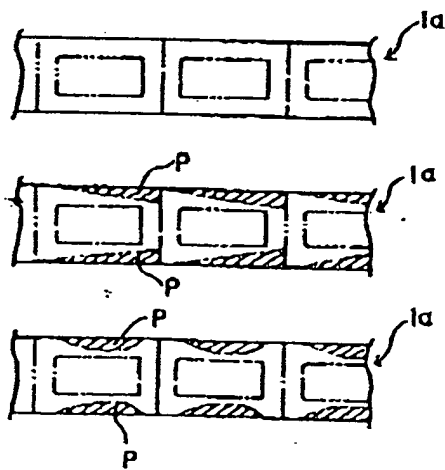


特開平3-176053(5)

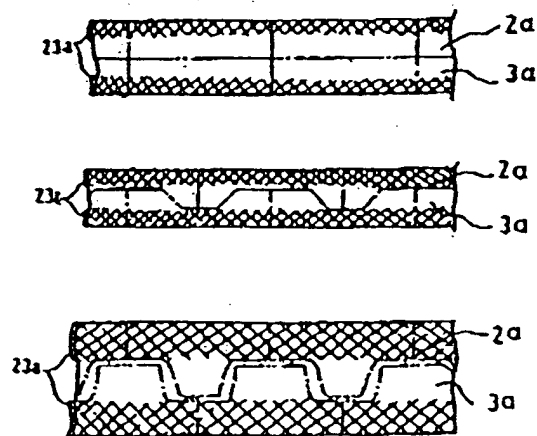
第1図(C)



第2図

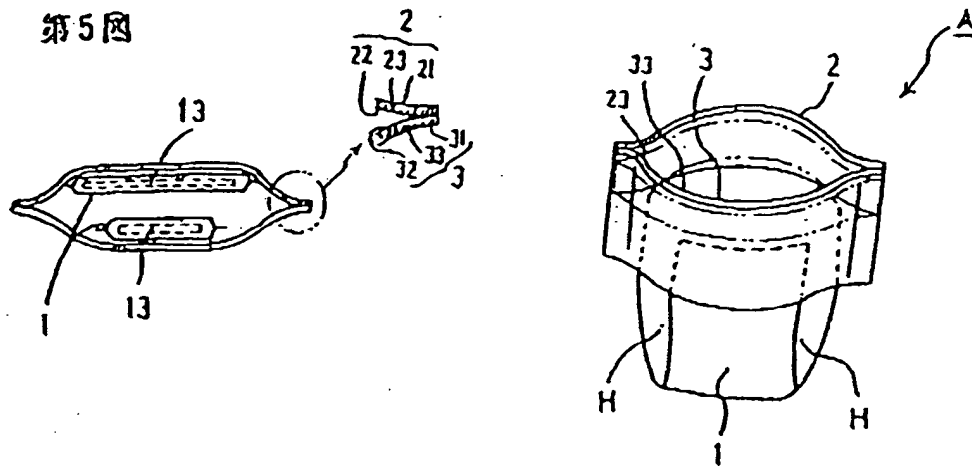


第3図



第3-176053(6)

第4图



第6图

